

In the Claims:

1. A battery separator for lead acid batteries comprising:  
a microporous membrane including  
an ultra high molecular weight polyethylene,  
a filler,  
a processing oil, and  
a grass lignin.
2. The separator of claim 1 wherein said grass lignin  
comprises about 5-20% by weight of said membrane.
3. The separator of claim 2 wherein said grass lignin  
comprises about 5-10% by weight of said membrane.
4. The separator of claim 1 wherein said grass lignin  
being sourced from bagasse, straw, abaca, sisal, flax, jute,  
hemp, and combinations thereof.
5. A lead acid battery including the separator of claim 1.
6. A battery separator for a lead acid battery comprises:  
a microporous membrane having an open cell structure  
with pores sizes in the range of about 0.1 to about 1 micron and  
porosity greater than 10%, and further comprising:

about 15-25% by weight of said separator being an ultra high molecular weight polyethylene;

about 50-80% by weight of said separator being a filler;

less than about 25% by weight of the separator being a processing oil;

about 5-20% by weight of the separator being a grass lignin.

7. The separator of claim 6 wherein said filler being selected from the group consisting of precipitated silica, oxide compounds, and mixtures thereof.

8. The separator of claim 6 wherein said oil being selected from the group consisting of mineral oil, olefinic oil, parafinic oil, napthenic oil, aromatic oil, and mixtures thereof.

9. The separator of claim 6 wherein said grass lignin being sourced from bagasse, straw, abaca, sisal, flax, jute, hemp, and combinations thereof.

10. A thermoplastic polymer formulation comprising:  
up to about 80% by weight of the formulation being thermoplastic polymer;  
up to about 20% by weight of the formulation being a processing oil, and

up to about 10% by weight of the formulation being a grass lignin.

11. The formulation of claim 10 wherein said polymer being a polyolefin.

12. The formulation of claim 10 wherein said polymer being an ultrahigh molecular weight polyethylene.

13. The formulation of claim 10 wherein said polymer includes a filler.

14. The separator of claim 10 wherein said grass lignin being sourced from bagasse, straw, abaca, sisal, flax, jute, hemp, and combinations thereof.